

Notice of Allowability

Application No.

10/018,730

Examiner

Tekchand Saidha

Applicant(s)

WONG ET AL.

Art Unit

1652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--
claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included
reewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS
NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative
the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

☒ This communication is responsive to 3.29.04 (RCE).

☒ The allowed claim(s) is/are 20, 22 and 24.

☐ The drawings filed on _____ are accepted by the Examiner.

☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☒ All b) ☐ Some* c) ☐ None of the:

1. ☒ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the
International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements
noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF
INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.

(b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of
Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of
each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the
attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

☐ Notice of References Cited (PTO-892)

☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____

☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material

5. ☐ Notice of Informal Patent Application (PTO-152)

6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____

7. ☐ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____

Notice of Allowability

1. The request filed on 03.29.2004 for a Request for Continued Prosecution (RCE) under 37 CFR 1.114 based on parent Application No. 10/018730 is acceptable and a RCE has been established. An action on the RCE follows.
2. Applicants' amendment filed along with papers for RCE is also acknowledged.
3. Claims 20, 22 and 24 are pending and under consideration in this examination.
4. Claims 20, 22 and 24 are allowed.
5. The following is an examiner's statement of reasons for allowance:

This Application provides of a process of oxidizing halo aromatic substrate, such as 1, 2-dichlorobenzene, ...hexachlorobenzene (see claim 20) using the P450cam from *Pseudomonas putida* of SEQ ID NO : 2 and the mutants based thereof, for example position 87, 96, 98, 101, 185, 244, 247, 248, 296, 395 or 396 of SEQ ID NO : 2.

Flitsch et al. [W0 96/14419] teach a number of specific mutants of mono-oxygenase P-450cam, including position 96 (Y96F mutant) of *Pseudomonas putida* wherein the ring carbon of the substrate is oxidized. Other mutational positions where one or more amino acids are modified in the active site include 87, 98, 101, 185,

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193, 244, 147, 295, 297, 395 & 396 (see pages 2, 4 & 11) or by replacing 96Y by a less polar side chain (pages 3 & 4). Shimoji et al. suggests using modified P450 enzymes for the bioremediation of areas polluted with halo aromatic compounds. The assay shows the conversion of 4-chlorotoluene to 4-chlorobenzyl alcohol. [see pages 8849-50 & abstract]. Gooch et al. [Toxicology and Applied Pharmacology (1989) 98, 422-433] describe a number of specific polychlorinated biphenyl (PCBs) and the use of monooxygenase P-450 system for oxidations of these substrates. Bogaards et al. teach oxidation of chlorinated benzenes, such as 1, 2-dichlorobenzene, ...hexachlorobenzene using human cytochrome P450 enzyme.

No prior art reference or sequence, however, taken alone or in combination teach the claimed invention or provide motivation to one of ordinary skill in the art to use the skills available in the area of enzymology or molecular biology, to make the invention obvious.

6. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tekchand Saidha (Ph.D.) whose telephone number is (571) 272-0940. The examiner can normally be reached on Monday-Friday from 8:15 am to 4:45 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapu Achutamurthy, can be reached at (571) 272-0928. The fax phone number for this Group in the Technology Center is 703 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is 571 272-1600.



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